Refining and Marketing

Key indicators

	2004	2005	2006	2007	**2008**
Results and refining margin					
Replacement cost profit before interest and tax ($ billion)	5.02	4.24	5.16	2.62	**4.18**
GIM[a] ($/bbl)	6.31	8.60	8.39	9.94	**6.50**
Refining availability[b] (%)	95.4	92.9	82.5	82.9	**88.8**

[a] See below for more information on the GIM.
[b] Refining availability represents Solomon Associates' operational availability, which is defined as the percentage of the year that a unit is available for processing after subtracting the annualized time lost due to turnaround activity and all planned mechanical, process and regulatory maintenance downtime.

Financial statistics

$ million

	2004	2005	2006	2007	**2008**
Replacement cost profit (loss) before interest and tax					
US	2,832	2,243	1,358	(1,232)	**(644)**
Non-US	2,188	1,999	3,803	3,853	**4,820**
	5,020	4,242	5,161	2,621	**4,176**
Operating capital employed					
US	15,040	16,968	16,527	17,748	**15,904**
Non-US	23,161	22,764	24,611	30,163	**25,295**
	38,201	39,732	41,138	47,911	**41,199**
Sales and other operating revenues	163,092	212,930	232,386	250,221	**320,039**
Property, plant and equipment (net book value)					
US	10,760	10,320	10,247	9,440	**10,608**
Non-US	14,153	12,342	12,901	15,030	**14,016**
	24,913	22,662	23,148	24,470	**24,624**
Capital expenditure and acquisitions					
US	1,314	1,226	1,339	1,872	**4,297**
Non-US	1,669	1,619	1,788	3,623	**2,337**
	2,983	2,845	3,127	5,495	**6,634**
Employee numbers at year end					
Excluding service station staff	41,100	42,000	41,900	42,700[a]	**40,300**
Service station staff	27,900	27,800	26,100	24,500[a]	**21,200**
	69,000	69,800	68,000	67,200[a]	**61,500**

Global Indicator Refining Margin[b]

$ per barrel

	2004	2005	2006	2007	**2008**
NWE	4.28	5.47	3.92	4.99	**6.72**
USGC	7.15	11.40	12.00	13.48	**6.78**
USMW	5.08	8.19	9.14	12.81	**5.17**
USWC	11.27	13.49	14.84	15.05	**7.42**
Singapore	4.94	5.56	4.22	5.29	**6.30**
BP average	6.31	8.60	8.39	9.94	**6.50**

[a] A minor amendment has been made to the 2007 figures to correct the classification of service station staff.
[b] The Global Indicator Refining Margin (GIM) is the average of regional industry indicator margins, which we weight for BP's crude refining capacity in each region. Each regional indicator margin is based on a single representative crude with product yields characteristic of the typical level of upgrading complexity. The refining margins are industry-specific rather than BP-specific measures, which we believe are useful to investors in analysing trends in the industry and their impact on our results. The margins are calculated by BP based on published crude oil and product prices and take account of fuel utilization and catalyst costs. No account is taken of BP's other cash and non-cash costs of refining, such as wages and salaries and plant depreciation. The indicator margin may not be representative of the margins achieved by BP in any period because of BP's particular refining configurations and crude and product slate.

Major chemicals plant capacities by site

Aromatics and acetyls

Geographical area	Site	Product	BP share of capacity at end of 2008 thousand tonnes per year	
US				
	Cooper River	PTA	1,342	
	Decatur	PTA	1,043	
		paraxylene	1,101	
		NDC	29	
	Texas City	acetic acid	546[a]	
		paraxylene	1,272	
		metaxylene	122	
Europe				
UK	Hull	acetic acid	544	
		acetic anhydride	154	
		EDAC	4	
Belgium	Geel	PTA	1,075	
		paraxylene	622	
Rest of World				
China	Chongqing	acetic acid	215	(51% of YARACO)[b]
		esters	51	(51% of YARACO)[b]
	Zhuhai	PTA	1,554	
Indonesia	Merak	PTA	254	(50% of PT Ami)[c]
Korea	Ulsan	acetic acid	248	(51% of SS-BP)[d]
		VAM	56	(34% of ASACCO)[e]
Malaysia	Kertih	acetic acid	389	(70% of BPPA)[f]
	Kuantan	PTA	626	
Taiwan	Kaohsiung	PTA	853	(61% of CAPCO)[g]
	Taichung	PTA	476	(61% of CAPCO)[g]
	Mai Liao	acetic acid	178	(50% of FBPC)[h]
			12,754	

[a] Sterling Chemicals plant, the output of which is marketed by BP.
[b] Yangtze River Acetyls Company.
[c] PT Amoco Mitsui Indonesia.
[d] Samsung-BP Chemicals Ltd.
[e] Asian Acetyls Company Ltd.
[f] BP Petronas Acetyls Sdn Bhd.
[g] China American Petrochemical Company Ltd.
[h] Formosa BP Chemicals Corporation.
[i] Ruhr Oel GmbH.
[j] Shanghai SECCO Petrochemicals Company Limited.
[k] Polyethylene Malaysia Sdn Bhd.
[l] Ethylene Malaysia Sdn Bhd.

Olefins and derivatives

Geographical area	Site	Product	BP share of capacity at end of 2008 thousand tonnes per year	
Europe				
Germany	Gelsenkirchen	ethylene	672	(61% of ROG)[i]
		propylene	347	(57% of ROG)[i]
		benzene	155	(50% of ROG)[i]
		cumeme	274	(50% of ROG)[i]
		cyclohexane	73	(50% of ROG)[i]
	Mülheim	solvents	108	(50% of ROG)[i]
Rest of World				
China	Caojing	acrylonitrile	153	(50% of SECCO)[j]
		ethylene	515	(50% of SECCO)[j]
		HDPE	359	(50% of SECCO)[j]
		polypropylene	141	(50% of SECCO)[j]
		polystyrene	164	(50% of SECCO)[j]
		styrene	274	(50% of SECCO)[j]
		other	684	(50% of SECCO)[j]
Malaysia	Kertih	polyethylene	191	(60% of PEMSB)[k]
		ethylene	66	(15% of EMSB)[l]
			4,176	

Chemicals production[a]

thousand tonnes

	2004	2005	2006	2007	**2008**
By geographical area					
US	4,643	3,891	3,464	4,328	**3,487**
Europe	4,491	4,322	4,146	3,617	**3,257**
Rest of World	4,224	5,863	6,454	6,083	**5,683**
	13,358	14,076	14,064	14,028	**12,427**

[a] Production of aromatics and acetyls, and olefins and derivatives.

Crude oil sales

	thousand barrels per day				
	2004	2005	2006	2007	**2008**
US	352	554	244	410	**203**
Europe	1,063	1,160	1,083	1,123	**946**
Rest of World	897	750	783	352	**540**
	2,312	2,464	2,110	1,885	**1,689**

Refinery throughputs and utilization

Refinery throughputs[a]

	thousand barrels per day				
	2004	2005	2006	2007	**2008**
US	1,373	1,255	1,110	1,064	**1,121**
Europe	892	847	813	758	**739**
Rest of World	342	297	275	305	**295**
	2,607	2,399	2,198	2,127	**2,155**
Crude distillation capacity at 31 December	2,823	2,832	2,823	2,769	**2,678**
Crude distillation capacity utilization[b]	93%	87%	76%	72%	**78%**

[a] Includes actual crude oil and other feedstock input both for BP and third parties.
[b] Crude distillation capacity utilization is defined as the percentage utilization of capacity per calendar day over the year after making allowance for average annual shutdowns at BP refineries (i.e. net rated capacity).

Crude oil input

	%				
	2004	2005	2006	2007	**2008**
Low sulphur crude	47	52	45	41	**31**
High sulphur crude	53	48	55	59	**69**

Refinery yield[a]

	thousand barrels per day				
	2004	2005	2006	2007	**2008**
Aviation fuels	241	241	216	231	**268**
Gasolines	1,025	940	874	788	**757**
Middle distillates	717	715	626	607	**631**
Fuel oil	144	133	136	115	**127**
Other products	534	474	432	390	**414**
	2,661	2,503	2,284	2,131	**2,197**

[a] Refinery yields exceed throughputs because of volumetric expansion.

Refineries

Refinery capacities

thousand barrels per day

Wholly and partly owned refineries at 31 December 2008		Group interest %[c]	Crude distillation capacities[a] Total	BP share	Major upgrading plant capacities[b] Vacuum distillation	Fluid catalytic cracking	Hydro-cracking	Catalytic reforming	Alky-lation	Hydro-treating 232°C & lighter	Hydro-treating 232°C & heavier	Vis-breaking	Coker	Isomer-ization	Lubes	Other[d]	Nelson Complexity Index[e]
US																	
California	Carson*	100.0	266	266	140	103	50	52	17	87	95	–	71	23	–	–	12.07
Washington	Cherry Point*	100.0	234	234	106	–	61	66	–	84	37	–	58	26	–	–	9.59
Indiana	Whiting*	100.0	405	405	191	165	–	64	25	125	206	–	35	26	–	–	9.73
Ohio	Toledo[f]*	50.0	155	78	36	26	16	22	6	20	33	–	17	–	–	–	10.66
Texas	Texas City*	100.0	475	475	237	175	130	138	35	224	243	–	33	–	–	–	11.41
			1,535	1,458	710	469	257	342	83	540	614	–	214	75	–	–	10.73
Europe																	
Germany	Bayernoil	22.5	215	48	16	10	9	9	–	15	19	3	–	–	–	1	7.20
	Gelsenkirchen*	50.0	266	133	55	15	29	16	–	46	46	10	16	9	–	–	8.44
	Karlsruhe	12.0	323	39	16	10	–	7	2	12	28	–	4	2	–	–	9.33
	Lingen*	100.0	93	93	43	–	28	30	–	31	45	–	23	9	–	–	10.77
	Schwedt	18.8	226	42	29	11	–	7	2	18	32	9	–	3	–	2	10.43
Netherlands	Rotterdam*	100.0	386	386	85	59	–	30	9	168	99	36	–	–	–	3	5.29
Spain	Castellón*	100.0	110	110	47	30	–	17	3	82	44	–	–	19	–	–	10.58
			1,619	851	291	135	66	116	16	372	313	58	43	42	–	6	7.55
Rest of World																	
Australia	Bulwer*	100.0	102	102	39	23	21	16	3	14	49	–	–	–	–	–	7.21
	Kwinana*	100.0	137	137	22	35	–	24	4	44	49	–	–	15	–	–	7.70
New Zealand	Whangerei	23.7	102	24	10	–	8	9	–	12	7	–	–	–	–	–	8.12
Kenya	Mombasa[g]	17.1	94	16	–	–	–	2	–	6	–	–	–	–	–	–	2.64
South Africa	Durban	50.0	180	90	28	19	–	17	1	30	32	14	–	4	2	–	8.44
			615	369	99	77	29	68	8	106	137	14	–	19	2	–	7.61
			3,769	2,678	1,100	681	352	526	107	1,018	1,064	72	257	136	2	6	9.30

*Indicates refineries operated by BP.

[a] Crude distillation capacity is gross rated capacity, which is defined as the maximum achievable utilization of capacity (24-hour assessment) based on standard feed.

[b] These are shown as BP share of capacities; BP has varying interests.

[c] BP share of equity, which is not necessarily the same as BP share of processing entitlements.

[d] Other consists of ethyl and methyl tertiary butyl ether units.

[e] Nelson Complexity Index is calculated based on the type and capacity of all the process units within a refinery. In general, the higher a refinery's Nelson Complexity Index, the greater that refinery's ability to make higher-value products from a given feedstock.

[f] On 31 March 2008, we completed a deal with Husky Energy Inc. to create an integrated North American oil sands business by means of two separate joint ventures, one of which entailed Husky taking a 50% interest in BP's Toledo refinery. The Toledo refinery is intended to be expanded to process approximately 170 mb/d of heavy oil and bitumen by 2015.

[g] On 15 January 2008, it was announced that Essar Energy Overseas Ltd, a subsidiary of Essar Oil Ltd, had entered into an agreement to acquire 50% of Kenya Petroleum Refineries Ltd. The transaction was initially expected to be finalized in 2008, but has since been delayed in negotiations.

Regional refining distillation capacity

thousand barrels per day

	2004	2005	2006	2007	**2008**
USGC	470	475	475	475	**475**
USMW	560	560	560	560	**483**
USWC	492	492	497	500	**500**
Total US	1,522	1,527	1,532	1,535	**1,458**
Europe	934	939	922	866	**851**
Rest of World	367	366	369	368	**369**
Total	2,823	2,832	2,823	2,769	**2,678**

Service stations[a b]

at 31 December

	2004	2005	2006	2007	**2008**
US (excluding jobbers)[c]	3,900	3,100	2,700	2,500	**2,500**
US jobbers	10,300	9,700	9,600	9,700	**9,200**
Europe	9,300	9,200	9,000	8,600	**8,600**
Rest of World	3,000	2,600	2,600	2,500	**2,300**
	26,500	24,600	23,900	23,300	**22,600**

[a] Includes all sites operated under a BP brand. Changes in the number of sites over time are affected by, among other things, dealer/jobber-owned sites that move to or from the BP brand as their fuel supply agreements expire and are renegotiated in the normal course of business.
[b] Excludes our interest in equity-accounted entities. Comparative information has been amended to this basis.
[c] On 15 November 2007, BP announced that it would sell all its company-owned and company-operated convenience stores in the US. At the end of 2008 sales of 293 sites has been successfully completed.

Petroleum product sales

Regional marketing sales volumes[a]

thousand barrels per day

	2004	2005	2006	2007	**2008**
US					
Aviation fuels	219	196	176	165	**178**
Gasolines	1,093	1,044	1,049	1,052	**1,015**
Middle distillates	333	307	296	260	**201**
Fuel oil	26	30	31	28	**33**
Other products	11	57	43	28	**33**
	1,682	1,634	1,595	1,533	**1,460**
Europe					
Aviation fuels	201	215	218	223	**220**
Gasolines	434	417	409	384	**337**
Middle distillates	765	751	741	711	**719**
Fuel oil	148	170	196	202	**180**
Other products	134	156	132	113	**110**
	1,682	1,709	1,696	1,633	**1,566**
Rest of World					
Aviation fuels	74	88	94	102	**103**
Gasolines	148	142	145	136	**148**
Middle distillates	157	127	133	148	**135**
Fuel oil	169	179	161	199	**247**
Other products	90	63	48	55	**52**
	638	599	581	640	**685**
Product totals					
Aviation fuels	494	499	488	490	**501**
Gasolines	1,675	1,603	1,603	1,572	**1,500**
Middle distillates	1,255	1,185	1,170	1,119	**1,055**
Fuel oil	343	379	388	429	**460**
Other products	235	276	223	196	**195**
Total marketing sales[b]	4,002	3,942	3,872	3,806	**3,711**
Trading/supply sales[c]	2,396	1,946	1,929	1,818	**1,987**
Total oil product sales	6,398	5,888	5,801	5,624	**5,698**

Petroleum product sales by geographical area[a]

$ million

	2004	2005	2006	2007	**2008**
US	54,400	63,363	71,175	76,898	**93,764**
Europe	50,668	69,956	79,327	87,719	**114,522**
Rest of World	19,390	21,779	27,493	30,362	**40,275**
	124,458	155,098	177,995	194,979	**248,561**

[a] Excludes sales to other BP businesses and sales of Aromatics and Acetyls products.
[b] Marketing sales are sales to service stations, end-consumers, bulk buyers and jobbers (i.e. third parties who own networks of a number of service stations and small resellers).
[c] Trading/supply sales are sales to large unbranded resellers and other oil companies.